



Could your building be powered by the sun?

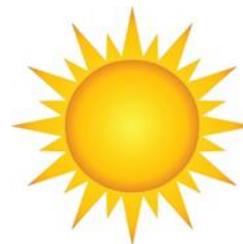


**An introductory guide to installing solar PV on community-
owned buildings in Edinburgh**

November 2019

What Is Solar Energy?

Solar Photovoltaic (PV) panels convert sunlight into electricity that can be used immediately, stored in a solar battery, or sold to the electricity grid. The panels are made up of individual photovoltaic cells which absorb sunlight. The stronger the sunlight, the more electricity that is produced, however, it doesn't have to be bright sunshine for the panels to produce electricity—they work even on cloudy days.



Why install solar PV?

Solar PV installations are not only a great way of cutting your energy costs, but they can also help raise money over the medium to long term for your community group.

What are the benefits?

- Solar PV is a mature technology with a predictable output, therefore it is easier to estimate the associated costs and risks than with other technologies.
- Roof-mounted solar PV is generally less controversial than many other technologies and planning permission may not even be required for smaller installations.
- Solar generates low carbon electricity which can be used to reduce the energy bills of a community building. Excess power is exported - reducing the carbon emissions of the grid.
- With sufficient space, solar PV can provide 100% of its output to a building. This removes the need for an export grid connection and avoids any grid-constraints.
- Community owned solar projects can provide local economic benefit through building skills, creating new jobs and providing work for local installers.

Is Your Building Suitable?

- **Orientation** – solar panels perform best when installed on roofs facing south. Roofs facing SE or SW are also suitable however this can reduce the efficiency of the panels a little.
- **Roof pitch** – roof pitches between 30°- 40° from horizontal are ideal but you should ensure your roof structure is able to support the additional weight. Solar panels can be installed on flat roofs using brackets that tilt them to a suitable pitch. Ground mounted panels are also possible although they can be more expensive.
- **Shading** – roofs should be free from shade such as overhanging trees, chimneys and anything that would obstruct the passage of the solar radiation to the collector panels.

You can arrange for a local, certified Microgeneration Certification Scheme installer to carry out a survey on your building to assess its suitability for solar panels¹. They will calculate the size of the system you will need, estimate how much electricity the system will generate, and how much money you could save after installation.



Left: Davidson Mains School, Edinburgh.

Right: Oaklands School, Edinburgh –
ECSC



¹ <https://mcs-certified.com/find-an-installer/>

Other Things to Consider

Grid connection:

Most projects will need to be connected to the electricity grid and this can be a significant issue across parts of Scotland, especially if large amounts of electricity are being generated i.e. greater than 50kW export capacity. If you intend on connecting to the grid it is important to initiate a discussion with the Distribution Network Operator at an early stage.

Further information on connecting to the grid can be found in Local Energy Scotland's CARES Toolkit.²



ECSC panels on Carrickvale Community Centre, Edinburgh

Planning constraints:

If your Solar PV installation is 50 kW or less, then it will fall under Permitted Development rights in Scotland and will not require planning permission, however the installation will still be subject to certain conditions and limits depending on whether it is domestic or non-domestic and whether the panels are roof or ground mounted. If your solar PV installation is greater than 50kW, you will need to apply for planning permission.

If you'd like to learn more about the technical aspects of Solar PV and the practical issues around installation, then LES' CARES Renewable Energy Handbook³ offers useful advice tailored to community groups. **Note: the CARES Handbook was last updated in 2013, so some of the information relating to Feed-in-Tariffs, the Renewables Obligation and other incentives no longer apply but it remains a fantastic practical guide.**

Development options for community owned solar

The following list gives a brief overview of different models to help you decide what level of community involvement you might choose:

- **Community group leads and develops the project** – The community group shoulders full responsibility for all the technical, commercial and financial risks and is responsible for managing the on-going budget. This option offers the highest financial payback and level of control.
- **Community group partnership** - The community group identifies and initiates the project but shares the costs and risks with another party in the form of a 'Shared Ownership Joint Venture'. This can make the process easier, however the benefits to the community group are reduced proportionally.
- **Community initiation** - The community group identifies a potential project, gains permissions to use the site and negotiates with a developer to move the project forward. By initiating the project, the community group can often negotiate favourable benefits, although these will be reduced as the developer takes on most of the risk.
- **Developer-led + community sale offer** – The developer initiates the project and looks to involve a community group. Developer offers to sell the entire project (or a proportion) to a community group with the associated benefits.

² <https://www.localenergy.scot/resources/cares-toolkit/project-development/grid-connection/>

³ https://www.localenergy.scot/media/1016/cares_handbook.pdf

- **Entirely developer-led** - Project is entirely created and led by developer. The community group is offered an annual community benefit payment. As all of the risk lies with the developer, the community benefit will tend to be small.

More detailed information is available online about developing solar PV projects⁴ and community energy in general.⁵

Funding & Finance

Possible help to secure initial funding:

- **Local Energy Scotland CARES Funding**: Scottish Government fund which offers a range of financial support to local energy projects.
- **Social Investment Scotland**: offer loan funding and business support to community groups looking to make a positive impact on people's lives, society or the environment.
- **Low Carbon Infrastructure Transition Project**: assists projects to develop investment-grade business cases to help secure public and private capital finance to demonstrate innovative low-carbon technologies in Scotland.
- **Community Shares Scotland**: advice on how community shares can help finance renewable energy schemes.
- **Energy Investment Fund**: Scottish Government fund which provides investment and funding for energy projects throughout Scotland, via either loans or equity investments.
- **Climate Challenge Fund**: development grants are still available for Scottish based community-led organisations to scope out potential projects that reduce local carbon emissions.
- **OneCity Trust**: Edinburgh based charity awards grants to projects tackling exclusion in the city. Prioritises innovative projects and initiatives that effectively address social exclusion through partnership working.
- **ECSC Community Benefit Fund**: Community groups in Edinburgh can apply to this fund for small grants for carbon reduction projects.

Smart Export Guarantee⁶

Once your installation is operational, you may be able to receive payments for electricity you export to the grid. The Smart Export Guarantee (SEG) is a government initiative which starts in January 2020 and will require most suppliers to offer you payment for your exported electricity. The SEG replaces the government's previous financial support scheme, the Feed-in-Tariff (FiT), which closed to new applications on 31st March 2019.

Making your project cost effective

There are other ways to reduce costs and maximise your income.

Incorporating battery storage technology allows you to be more flexible with when you use the electricity you generate, minimising your reliance on the grid, and how much you pay to your energy supplier. During the day, when solar panels are generating more power than you need, excess power is diverted to the battery. When the sun goes down, or if you're using more energy than your panels are providing, the battery will kick in to give you power and prevent drawing from the grid.

⁴ <https://www.localenergy.scot/resources/cares-toolkit/technology-options/solar-pv/>

⁵ <https://www.cse.org.uk/local-energy/download/the-rough-guide-to-community-energy-400>

⁶ <https://www.energysavingtrust.org.uk/renewable-energy/electricity/solar-panels/smart-export-guarantee-and-feed-tariffs>

One to watch....

There may also be the opportunity to install Electric Vehicle charging points. While most EV charging stations are currently free of charge, this is likely to change. In future, you may be able to generate income from an EV charging installation directly or, depending on your community group's activities, the presence of an EV charging station could boost other revenue streams by bringing increased footfall to your door.

[Comrie Croft](#)⁷ is a great example of an innovative community energy project which incorporates Solar PVs, battery storage and EV charging points.

What if you want to invest in solar?

Edinburgh Community Solar Co-operative (ECSC) generates low carbon, renewable solar electricity by installing solar panels on council buildings across Edinburgh. They are planning to install more solar panels on council buildings in 2020 and will be launching their second public share offer where you can purchase shares for as little as £100. Not only do members receive up to 5% return on their investment but you will also be helping the city of Edinburgh to become a net-zero carbon city.

Other Useful Information & Contacts

[Community Energy Scotland](#) is a membership based charity which offers detailed, independent and ongoing support for all aspects of community energy project development. CES have a project database which hosts a wide variety of case studies including Solar PV projects. Contact details are available on their website.

[Resource Efficient Scotland](#) (RES) offer a free renewable energy/energy efficiency survey to help community organisations reduce their energy costs. You can contact them via their website or phone the Edinburgh office on 0131 468 8680.

[Local Energy Scotland](#) (LES) offer free advice and support to develop renewable energy schemes or to secure and manage income from renewables. They administer the Scottish Government's Community and Renewable Energy Scheme (CARES) and have a project database of community and locally owned renewable energy projects. Contact details are available on their website.

Interested in finding out what benefits you might get from installing a solar PV system? Energy Saving Trust have a handy online [Solar Energy Calculator](#)⁸ which can help you decide if a PV system is right for you.



*Children celebrate at the launch of
Edinburgh Community Solar
Cooperative, Currie High School. 7th
October 2016.*

⁷ <https://www.localenergy.scot/media/110369/comrie-croft-case-study-for-cares-sc.pdf>

⁸ <https://www.energysavingtrust.org.uk/scotland/tools-calculators/solar-energy-calculator>